WHAT IS CLAIMED IS

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      1. An image detecting method comprising the steps of:

      a) searching for a pattern satisfying a predetermined commencement requirement by scanning an

10   input image;

      b) using the pattern as a starting point, with referring to a dictionary storing therein distances between the center line and an edge of a detection-target semicircle, determining for each of a

15   predetermined number of main scan lines along a sub-scan direction whether or not a predetermined edge pattern occurs within a respective range of the distance of said dictionary; and

      c) determining a detection of the semicircle

20   when the number of error main scan lines on which the predetermined edge pattern does not occur within the respective range of the distance of said dictionary is less than a predetermined threshold.

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2.   The method as claimed in claim 1, wherein:

the predetermined commencement requirement

comprises requirements in which a ratio of black pixels

occurring on a current main scan line between

5   predetermined edge patterns is more than a predetermined

value, and, also, a ratio of white pixels at the same

positions but on an immediately preceding main scan line

is more than a predetermined value.

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3.   The method as claimed in claim 1, wherein:

the number of error main scan lines comprises

15   any one of the total of main scan lines on which

predetermined left or right edge pattern does not occur,

the number of successive main scan lines on which the

predetermined left edge pattern does not occur, and the

number of successive main scan lines on which the

20   predetermined right edge pattern does not occur.

25   4.   An image detecting system comprising:

a part searching for a pattern satisfying a predetermined commencement requirement by scanning an input image;

a part using the pattern as a starting point,
5   with referring to a dictionary storing therein distances between the center line and an edge of a detection-target semicircle, determining for each of a predetermined number of main scan lines along a sub-scan direction whether or not a predetermined edge pattern
10   occurs within a respective range of the distance of said dictionary; and

a part determining a detection of the semicircle when the number of error main scan lines on which the predetermined edge pattern does not occur
15   within the respective range of the distance of said dictionary is less than a predetermined threshold.

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5.   The system as claimed in claim 4, wherein:
the predetermined commencement requirement comprises requirements in which a ratio of black pixels occurring on a current main scan line between
25   predetermined edge patterns is more than a predetermined

value, and, also, a ratio of white pixels at the same
positions but on an immediately preceding main scan line
is more than a predetermined value.

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6. The system as claimed in claim 4, wherein:

the number of error main scan lines comprises

10 any one of the total of main scan lines on which
predetermined left or right edge pattern does not occur,
the number of successive main scan lines on which the
predetermined left edge pattern does not occur, and the
number of successive main scan lines on which the

15 predetermined right edge pattern does not occur.

20 7. A program, read by a computer, which thus
executes the program so as to perform a process of
detecting an predetermined figure, said program
comprising:

first program code means for searching for a

25 pattern satisfying a predetermined commencement

requirement by scanning an input image;

second program code means for using the pattern as a starting point, with referring to a dictionary storing therein distances between the center

5 line and an edge of a detection-target semicircle, determining for each of a predetermined number of main scan lines along a sub-scan direction whether or not a predetermined edge pattern occurs within a respective range of the distance of said dictionary; and

10 third program code means for determining a detection of the semicircle when the number of error lines on which the predetermined edge pattern does not occur within the respective range of the distance of said dictionary is less than a predetermined threshold.

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8. The program as claimed in claim 7,

20 wherein:

the predetermined commencement requirement comprises requirements in which a ratio of black pixels occurring on a current main scan line between predetermined edge patterns is more than a predetermined

25 value, and, also, a ratio of white pixels at the same

positions but on an immediately preceding main scan line
is more than a predetermined value.

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9.   The program as claimed in claim 7,
wherein:

the number of error main scan lines comprises
10   any one of the total of main scan lines on which
predetermined left or right edge pattern does not occur,
the number of successive main scan lines on which the
predetermined left edge pattern does not occur, and the
number of successive main scan lines on which the
15   predetermined right edge pattern does not occur.

20   10.   A computer-readable recording medium
storing therein a program, read by a computer, which
thus executes the program so as to perform a process of
detecting an predetermined figure, said program
comprising:

25   first program code means for searching for a

pattern satisfying a predetermined commencement
requirement by scanning an input image;

        second program code means for using the
pattern as a starting point, with referring to a

5   dictionary storing therein distances between the center
line and an edge of a detection-target semicircle,
determining for each of a predetermined number of main
scan lines along a sub-scan direction whether or not a
predetermined edge pattern occurs within a respective

10   range of the distance of said dictionary; and

        third program code means for determining a
detection of the semicircle when the number of error
main scan lines on which the predetermined edge pattern
does not occur within the respective range of the

15   distance of said dictionary is less than a predetermined
threshold.

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        11. The recording medium as claimed in claim
10, wherein:

        the predetermined commencement requirement
comprises requirements in which a ratio of black pixels

25   occurring on a current main scan line between

predetermined edge patterns is more than a predetermined

value, and, also, a ratio of white pixels at the same

positions but on an immediately preceding main scan line

is more than a predetermined value.

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12. The recording medium as claimed in claim

10 10, wherein:

the number of error main scan lines comprises

any one of the total of main scan lines on which

predetermined left or right edge pattern does not occur,

the number of successive main scan lines on which the

15 predetermined left edge pattern does not occur, and the

number of successive main scan lines on which the

predetermined right edge pattern does not occur.